



# UNITED STATES PATENT AND TRADEMARK OFFICE

12  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,331	03/25/2004	Kit S. Lam	02307W-131510US	1374
20350 7590 01/08/2008 TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER LIU, SUE XU	
			ART UNIT 1639	PAPER NUMBER
			MAIL DATE 01/08/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/811,331	LAM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sue Liu	1639	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 8-11, 13, 14, 19 and 21-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12, 15-18, 20 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Status***

1. Claims 1-29 are currently pending.

Claims 8-11, 13, 14, 19 and 21-28 have been withdrawn.

Claims 1-7, 12, 15-18, 20 and 29 are being examined in this application.

### ***Election/Restrictions***

2. Applicant's election with traverse of Group I (Claims 1-21 and 28) in the reply filed on 11/27/06 is as previously acknowledged.

3. This application contains claims 22-27 drawn to an invention nonelected with traverse in the reply filed on 11/27/06. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

4. Applicant's election of species as specified in the Reply filed on 11/27/2006 (Reply, p. 12+) and 4/9/07 (p. 11+) is as previously acknowledged. As previously acknowledged, applicants further stated "Claims 1-7, 12, 15-18, 20 and 29 are readable" on the elected species. (Reply, 4/9/07; p. 12, top). Accordingly, Claims 8-11, 13-14, 19, 21, and 28 are withdrawn due to non-elected species.

***Priority***

5. This application claims benefit of provisional application 60/458,470 filed on 03/28/2003.

***Specification***

6. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. MPEP 608.01.

***Claim Rejections Withdrawn***

7. In light of applicants' amendments to the claims to clarify the claim language, the following claim rejections as set forth in the previous office action are withdrawn:

Claims 1-7, 12, 15-18, 20 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Upon further consideration and in light of applicant's amendments to the claims, the following claim rejection is withdrawn:

Claims 1-7, 12, 15-18, 20 and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement

*Claim Rejections Maintained*

*Claim Rejections - 35 USC § 102*

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(Note: the instant claim numbers are in bold font.)

Lebl

10. Claims 1-7, 12, 15-18, 20 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Lebl et al (US 5,840,485; 11/24/1998; cited in IDS; cited previously). The previous rejection is maintained for the reasons of record as set forth in the previous Office action as well as the reasons below.

The instant claims recite a method for preparing a library of compounds, comprising: a) providing a plurality of individual synthesis templates each comprising a solid support, wherein said solid support has an interior portion and an exterior portion each with a plurality of reactive functional groups, wherein said solid support is linked to a scaffold via a scaffold linker, wherein said scaffold has at least two scaffold functional groups, and wherein said solid support is linked at least two coding tag precursors, each comprising a coding functional group and a coding linker; b) contacting a first synthesis template with a first reactive component such that the first reactive component reacts with both a first scaffold functional group and a first coding functional

group, wherein said first scaffold functional group reacts with said first reactive component to afford a first scaffold building block, and wherein said first coding functional group reacts with said first reactive component to afford a first coding building block; c) contacting said first synthesis template with a successive reactive component such that a subsequent scaffold functional group reacts with said successive reactive component to afford a subsequent scaffold building block, and a subsequent coding functional group reacts with said successive reactive component to afford a subsequent coding building block; d) repeating step c) until a first compound has been prepared; and e) subjecting additional synthesis templates to steps b) - d) with additional reactive components to prepare additional compounds of said library of compounds, thus preparing said library of compounds.

Lebl et al, throughout the patent, teach using solid substrate comprising an interior and an exterior for synthesis of various compounds including “coding molecules” and “synthetic test compound”. (See Abstract)

The instant claimed invention and the corresponding teachings of the reference are as follows (with the instant claim recitation in *Italic*):

**For claim 1:** *a) providing a plurality of individual synthesis templates: solid support has an interior portion and an exterior portion:* The reference teaches solid support comprising an interior portion and an exterior portion (such as surface portion) (e.g. Claim 1; Figure 1; col. 6, lines 11+).

*each with a plurality of reactive functional groups:* The reference also teaches the exterior and the interior of the beads (solid support) comprise various functional groups. (e.g. col. 12, lines 15+)

*wherein said solid support is linked to a scaffold via a scaffold linker, wherein said scaffold has at least two scaffold functional groups:* The reference teaches the solid support comprise a “scaffold molecule” comprising at least two functional groups such as the ones contained by amino acids (modified or otherwise) (e.g. Claims 6 and 8; col. 12, lines 50+). The reference also teaches various linkers to link the various functional groups to the solid support. (e.g. cols. 12-13).

*wherein said solid support is linked to at least two coding tag precursors, each comprising a coding functional group and a coding linker:* The reference teaches the “coding molecule is a branched polypeptide” (e.g. Claim 11; Figure 1), and “on each said support, the structure of the test compound is encoded by a plurality of species of coding molecules” (e.g. claim 13), which read on the “at least two coding tag precursors” linked on the solid support of the instant claim.

*b) contacting a first synthesis template with a first reactive component such that the first reactive component reacts with both a first scaffold functional group and a first coding functional group, wherein said first scaffold functional group reacts with said first reactive component to afford a first scaffold building block, and wherein said first coding functional group reacts with said first reactive component to afford a first coding building block:* The reference teaches chemically linking subunits (read on reactive components) to the scaffold (or synthetic test compound) and the coding molecule (e.g. cols. 10-11; especially, col. 10, lines

55+; col.11, lines 36+). The reference also teaches reacting the “subunit” (or the reactive component) to both the scaffold functional group and the coding functional group such as “linking of the same polymer subunit to all of the portions of the solid support” (e.g. col.11, lines 30+), and “the same polymer is elongated on the test arm [scaffold] as on the coding arm” (e.g. col.11, lines 37+; claims 6-8; col.60, ll 64+), which read on the limitation that the “first reactive components” react with both the scaffold and the coding groups on the solid support of the instant claim.

*c) contacting said first synthesis template with a successive reactive component such that a subsequent scaffold functional group reacts with said successive reactive component to afford a subsequent scaffold building block, and a subsequent coding functional group reacts with said successive reactive component to afford a subsequent coding building block; d) repeating step c) until a first compound of said library of compounds has been prepared; and e) subjecting additional synthesis templates to steps b) - d) with additional reactive components to prepare additional compounds of said library of compounds, thus preparing said library of compounds:*

The reference teaches repeating the synthesis steps and creating various polymers (e.g. col. 11, lines 21+; col.6, lines 46+), which read on the repetitive synthesis of the library of compounds of the instant claim.

**For Claim 2:** The reference teaches cleaving the synthetic compounds from the solid support (col.34, lines 35+), which reads on the cleaving step the instant claim.

**For Claim 3:** The reference teaches elongating the same polymer on the “test arm” as the “coding arm” (col. 11, lines 36+), which reads on the same number of functional groups of instant claim.

**For Claim 4:** The reference teaches nucleophilic displacement reactions (e.g. claim 23; col.79, 13+), which reads on the nucleophilic substitution of the instant claim.

**For Claim 5:** The reference teaches parallel synthesis of the coding and the test compounds (e.g. col. 11, lines 10+) and the generation of a library of test compounds together (e.g. cols. 10-11), which read on the parallel synthesis of the compounds of the instant claim.

**For Claim 6:** The reference teaches general formula for the solid support comprising synthetic compounds and coding compounds such as depicted in Figure 1 (especially Figure 1C comprising an interior and an exterior), and as depicted in cols. 41-42. For example, the schematic diagram of cols. 41-42 shows linkers for both the coding and the testing strands (reads on “L” and “L’” of instant formula I), a double circled region as the solid support (interior and exterior of formula I), functional groups protected by Fmoc (reads on “(G<sup>i</sup>)<sub>n</sub>” of formula I) as well as Boc and Alloc protection groups (read on “(G’)<sup>i</sup>” of formula I).

**For Claim 7:** The reference teaches the “coding molecule is a branched polypeptide” (e.g. Claim 11; Figure 1), and “on each said support, the structure of the test compound is encoded by a plurality of species of coding molecules” (e.g. claim 13). The reference also teaches multiple numbers of coding molecules are attached to the insides of individual resin beads (i.e. the solid support) (e.g. col.16, lines 7+). Thus, the multiple coding molecules on the same resin bead read on the “L’-(G’)<sup>2</sup>” and the “L’-(G’)<sup>1</sup>” of the instant Claim 7. The reference also teaches multiple (at least two) test compounds linked to the “scaffold” (e.g. Figures 3-4; col. 28), which read on the “G1” and “G2” groups of formula Ia of the instant claim.

**For Claim 12:** The formula III depicted in the instant claim 12 is essentially the same as the formula (I) of the instant claim 6. Thus, the reference's teaching as discussed above read on the instant claim.

**For Claims 15 and 29:** The reference teach each coding subunit correspond to a test compound subunit (e.g. cols.9-10; especially, col.10, lines 4+; col.6, lines 34+).

**For Claim 16:** The reference teaches a decoding step by cleaving the coding compounds such as peptides from the solid support and sequence the peptide (e.g. col.37, lines 5+), which reads on the decoding step of the instant claim.

**For Claim 17:** The reference teaches using mass spectrometry to determine the synthesized compounds or coding compounds. (e.g. cols.6-7, bridging para; col.33, lines 22+).

**For Claim 18:** The reference teaches using one type of scaffold to generate a library of different compounds (e.g. Figures 7 and 8; col.7, lines 60+).

**For Claim 20:** The reference teaches using compounds such as amino acids, and polyaromatic structures as scaffolds (e.g. Figure 3; Claims 37-89), which read on the elected scaffold species of the instant claim 20.

#### *Discussion and Answer to Argument*

11. Applicant's arguments have been fully considered but they are not persuasive for the following reasons (in addition to reasons of record). Each point of applicant's traversal is addressed below (applicant's arguments are in italic):

*Applicants argue the Lebl reference does not anticipate the instant claimed invention, because the Lebl reference does not specifically teach step (b) of the instant claim 1. (Reply, pp.24-25).*

Applicants are respectively directed to the above discussion for detail discussion of how the Lebl reference anticipate the instant claimed invention, especially the method steps of reacting the “first reactive component” with both the first scaffold functional group and the first coding functional group.

Applicants also state the instant claim 1 provides “the first reactive component reacts with both the first scaffold functional group and the first coding functional group *simultaneously in the same reaction*” and the Lebl reference fails to teach “preparation of the first scaffold building block and the first coding building block simultaneously in the same reaction.” (Reply, p.24, para 4; emphasis in original).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., “simultaneously in the same reaction”) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants also recited a specific passage (i.e. col.10, ll 55+ and col.11, ll 36+) of the Lebl reference to specifically point out that the “coding molecule” of the reference is synthesized “before or after linking” the subunit of the synthetic test compound (i.e. the scaffold molecule).

However, the instant claim language (claim 1) does not exclude methods that link the coding subunit “before or after linking” the scaffold subunit. Although the instant claim recites reacting the first reactive component with both the scaffold and the coding molecule, the instant claim does not recite “simultaneous reaction”. Furthermore, the said recitation of the Lebl reference (i.e. col.11, ll 36+) is only one embodiment of the reference’s teaching. As discussed supra, the Lebl reference teaches reacting the same subunit with both the scaffold and the coding molecule on the substrate (e.g. col.11, 30+ and 37+). See MPEP 2123 on anticipation by preferred and nonpreferred embodiments of a reference’s teaching.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Application/Control Number:  
10/811,331  
Art Unit: 1639

Page 12

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Liu whose telephone number is 571-272-5539. The examiner can normally be reached on M-F 9am-3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Schultz can be reached at 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/SL/  
Art Unit 1639  
1/2/08

/Jon D. Epperson/  
Primary Examiner, AU 1639